

## **DOWNHOLE OPTICAL SENSOR SYSTEM WITH REFERENCE**

### **ABSTRACT OF THE DISCLOSURE**

Embodiments of the present invention generally provide methods, apparatus, and systems for compensating for frequency fluctuations in source light used to interrogate an optical sensor. The optical sensor may be interrogated to generate a sensor signal. A reference device co-located with the optical sensor may also be interrogated to generate a reference signal. Optical parameters extracted from the reference signal may be used to correct parameters extracted from a sensor signal.